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## 2020 GM HD 2500/3500 2WD/4WD CSS-C3-23 4" S.T.L. LIFT KIT

### READ THE FOLLOWING NOTES PRIOR TO INSTALLATION

DO NOT ALTER THE FINISH OF ANY COMPONENTS. CHANGING THE FINISH SUCH AS CHROMING, ZINC-PLATING, OR ANY TYPE OF PAINTING, CAN CAUSE STRUCTURAL FATIGUE OF COMPONENTS.

PRIOR TO INSTALLATION, COMPARE THE PARTS LIST WITH THE COMPONENTS RECEIVED IN THE KIT. IF ANY PIECES ARE MISSING PLEASE CONTACT YOUR LOCAL RETAILER OR CST PERFORMANCE SUSPENSION AT 951-571-0212, AND YOU WILL BE TAKEN CARE OF IN A TIMELY MANNER.

READ ALL INSTRUCTIONS FROM START TO FINISH BEFORE BEGINNING INSTALLATION. IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED, SEVERE FRAME, TIRE, OR SUSPENSION DAMAGE MAY RESULT TO THE VEHICLE. IF YOU INCUR A PROBLEM DURING THE INSTALLATION OF THIS KIT, FIRST BE SURE YOU HAVE FOLLOWED THE INSTRUCTION FROM START TO FINISH ACCURATELY AND IF SO PLEASE CALL 951-571-0212, WE WILL DO OUR BEST OVER THE PHONE TO ASSIST YOU WITH YOUR PROBLEM, OR DIRECT YOU ACCORDINGLY.

VEHICLES THAT RECEIVE OVER SIZED TIRES SHOULD CHECK BALL JOINTS, TIE ROD ENDS AND PIVOT POINTS, AS WELL AS GENERALLY INSPECT THE ENTIRE SUSPENSION FRONT TO REAR EVERY 2500 – 5000 MILES FOR WEAR AND REPLACE PARTS AS NEEDED.

ALSO, WE WOULD LOVE TO SEE YOUR TRUCK COMPLETED. IF YOU WOULD LIKE TO HAVE YOUR VEHICLE FEATURED ON OUR SOCIAL MEDIA PAGES, PLEASE E-MAIL US AT [sales@cstsuspension.com](mailto:sales@cstsuspension.com) WITH PICTURES OF YOUR VEHICLE, LIST OF MODS, YOUR ACCOUNT NAME AND WE WILL GET THEM POSTED. THANK YOU FOR SUPPORTING CST!!!



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### Before and after measurements

We suggest you measure from the center of wheel hub to bottom of fender

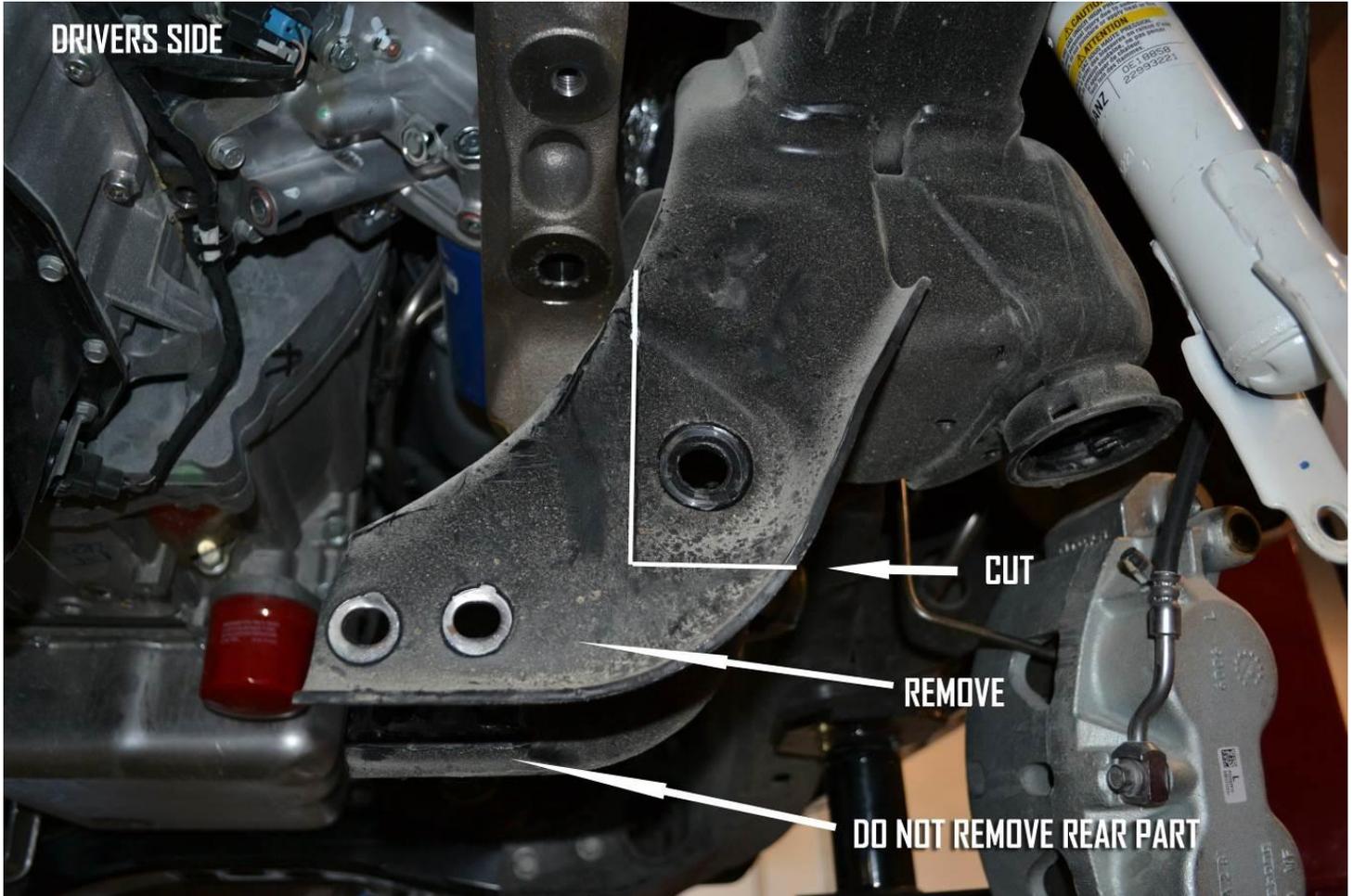
BEFORE: DF \_\_\_\_\_ PF \_\_\_\_\_ DR \_\_\_\_\_ PR \_\_\_\_\_

AFTER: DF \_\_\_\_\_ PF \_\_\_\_\_ DR \_\_\_\_\_ PR \_\_\_\_\_

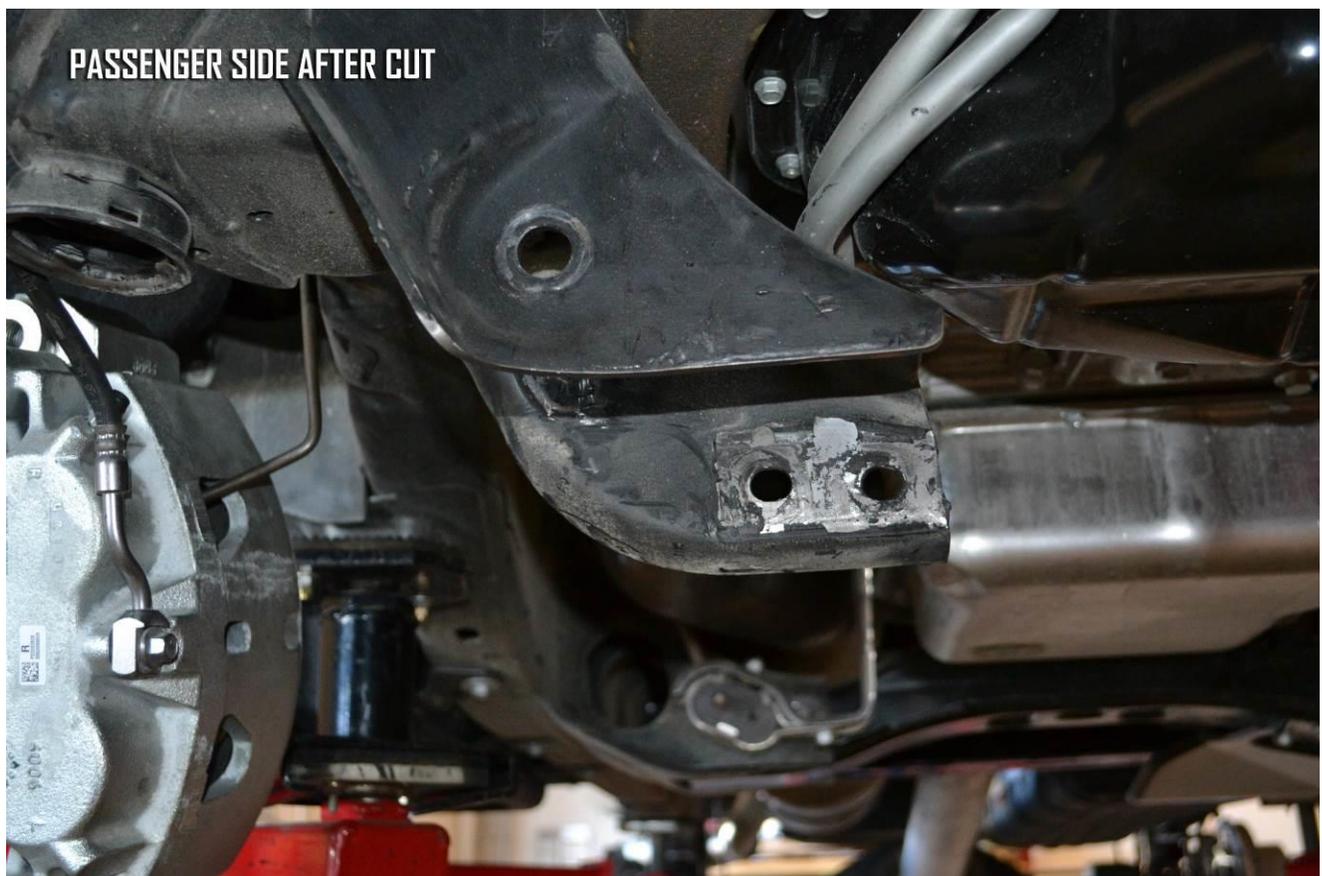
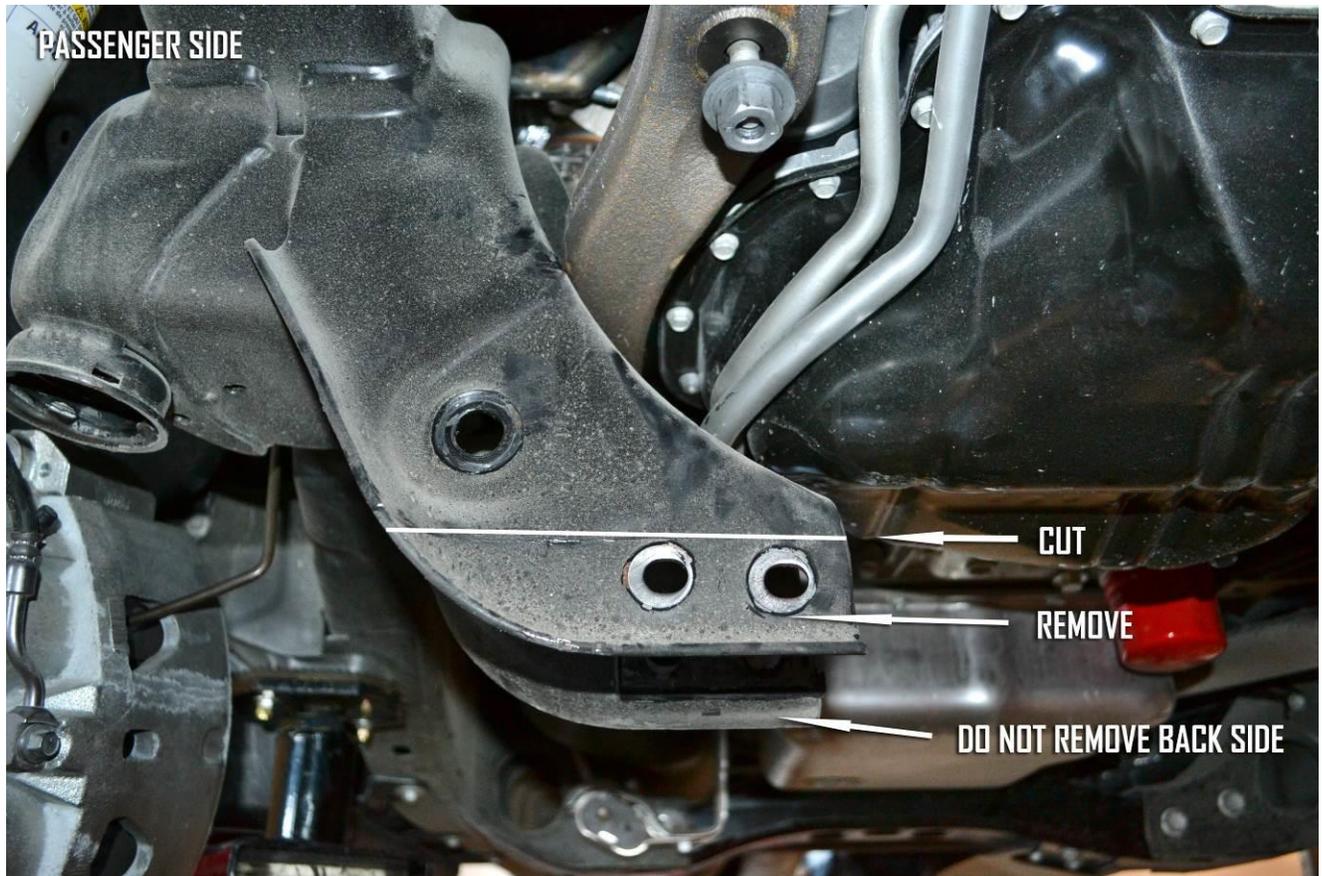
## Instructions:

1. Measure the ride height and document it for later reference, do all 4 corners, measure from the fender well to the center of the wheel.
2. Lift the truck up and support it under the frame with jack stands. Do not work under an unsupported vehicle.
3. Remove the front wheels. (🔧 22mm socket)
4. Measure the torsion bar adjusters and document their setting. Mark the back side of the torsion bars driver and passenger so you can reinstall them the same way during reassembly.
5. Remove the torsion adjustment bolts. (🔧 21mm socket)
6. Use a torsion key tool to hold the torsion key up and slide the torsion adjuster block out of the torsion cross member.
7. Slide the torsion bars forward and remove the torsion adjuster keys.
8. Remove the lower skid plate. (🔧 15mm socket)
9. Separate the tie rods from the spindles. (🔧 21mm socket)
10. Unbolt the antilock wire from bottom of spindle. (🔧 channel lock pliers)
11. Remove brake line and antilock wire from bracket attached to the inside of spindle. Discard this bracket, it will not be reused. (🔧 10mm socket)
12. Remove the 4 bolts that hold each brake calipers to the spindles and hang the calipers out of the way, do not let them hang on the brake lines. Do not separate the brake line from the brake caliper. (🔧 21mm socket)
13. Remove the small bolt that holds the rotor on the hub and slide the rotor off the hub. Mark the hubs and rotors driver and passenger so you can put them on the correct side during reassembly. (🔧 t30 torx)
14. Pull the dust cap off of the hub and remove the nut that holds the axle into the hub. (🔧 34mm socket)
15. Do NOT remove the axles. Leave attached to front diff.
16. Separate both upper and lower ball joints from spindle. ***Be careful this spindle is heavy.*** As your removing the spindle from the vehicle, point the spindle down and out while letting the front axles slide out of the hub. Make sure to hang front cv axles so you do not cause any damage to the cv joints. (🔧 18mm wrench, 24mm socket)
17. Remove the sway bar links. (🔧 18mm socket)
18. Separate the bottom of the front shocks from the lower arms. (🔧 21mm socket, 21mm wrench)
19. Remove the lower control arms by lowering and sliding off torsion bars. Remove torsion bars from cross members and set aside. Make sure to mark your torsion bars driver and passenger & front and rear. (🔧 21mm socket, 24mm wrench)
20. Remove the rear cross member under the front differential. (🔧 18mm socket, 18mm wrench)
21. Separate the front driveshaft from the differential. Make sure to use a paint marker and mark the driveshaft flange and front diff. This way the front driveshaft can be bolted directly up the same way it came off. Use a tie down/zip ties to hold it up out of the way for now. (🔧 11mm socket)
22. Unclip the wiring harness that plugs into the front differential. Make sure not to damage the connector. Free the wire completely from the differential and tuck it up out of the way for now. Disconnect the vent line.

23. **We recommend 2 people for this step.** Support the front differential and remove all the bolts that hold the front differential to the diff mounts, do not remove the rubber mounted diff mounts. Remove the differential with front axles attached. **Use caution, it is heavy.** (🔧 21mm socket, 18mm socket, 18mm wrench, 15mm socket)
24. Wrap the included paper pattern (last page of the instructions) around the driver's side rear lower arm mount. Line it up and mark the mount with a paint pen. Cut the marked section off using a sawzall or a die grinder cut off wheel. Note that it is the front side of the rear a-arm mount that gets cut. Clean up any sharp edges and paint any bare metal to prevent rust.



25. Cut the passenger side cross member as shown in the picture. It is the front side of the rear lower a-arm mount that gets cut. The cut is horizontal about 3/8" above the top of the two holes. Clean up any sharp edges and paint any bare metal to prevent rust.



**26.** Open parts bag # 1

**27.** Bolt the driver's side diff drop bracket to the upper diff mount in the truck using the supplied 12mm bolts and Loctite. The tall side of the bracket goes toward the front of the truck. If there is any slack in the holes push the bracket toward the passenger side before tightening. (🔧 19mm socket)



**28.** Bolt the passenger side diff drop to the upper diff mount in the truck. Use the stock nuts and locktite. The tall side of the bracket goes toward the front of the truck. (🔧 21mm socket)



**29.** Open parts bag # 2

**30.** Install the front differential using the supplied hardware. Once you have all the bolts in you can tighten everything up, if there is any play side to side, push the front diff towards the passenger side before tightening. Make sure the differential does not hit the frame where you cut it, remove more frame material

if necessary. Use the  $\frac{1}{2}$  x  $1\frac{1}{2}$  bolts on the passenger side. Use the  $\frac{1}{2}$  x  $3\frac{1}{2}$  and the  $\frac{9}{16}$  x  $3\frac{1}{2}$  on the driver's side. (🔧 3/4 socket, 3/4 wrench, 13/16 socket, 7/8 wrench)

- 31.** Reattach the wires for the diff, use the supplied zip ties to attach the wire to the top of the diff. Install the vent line extension.



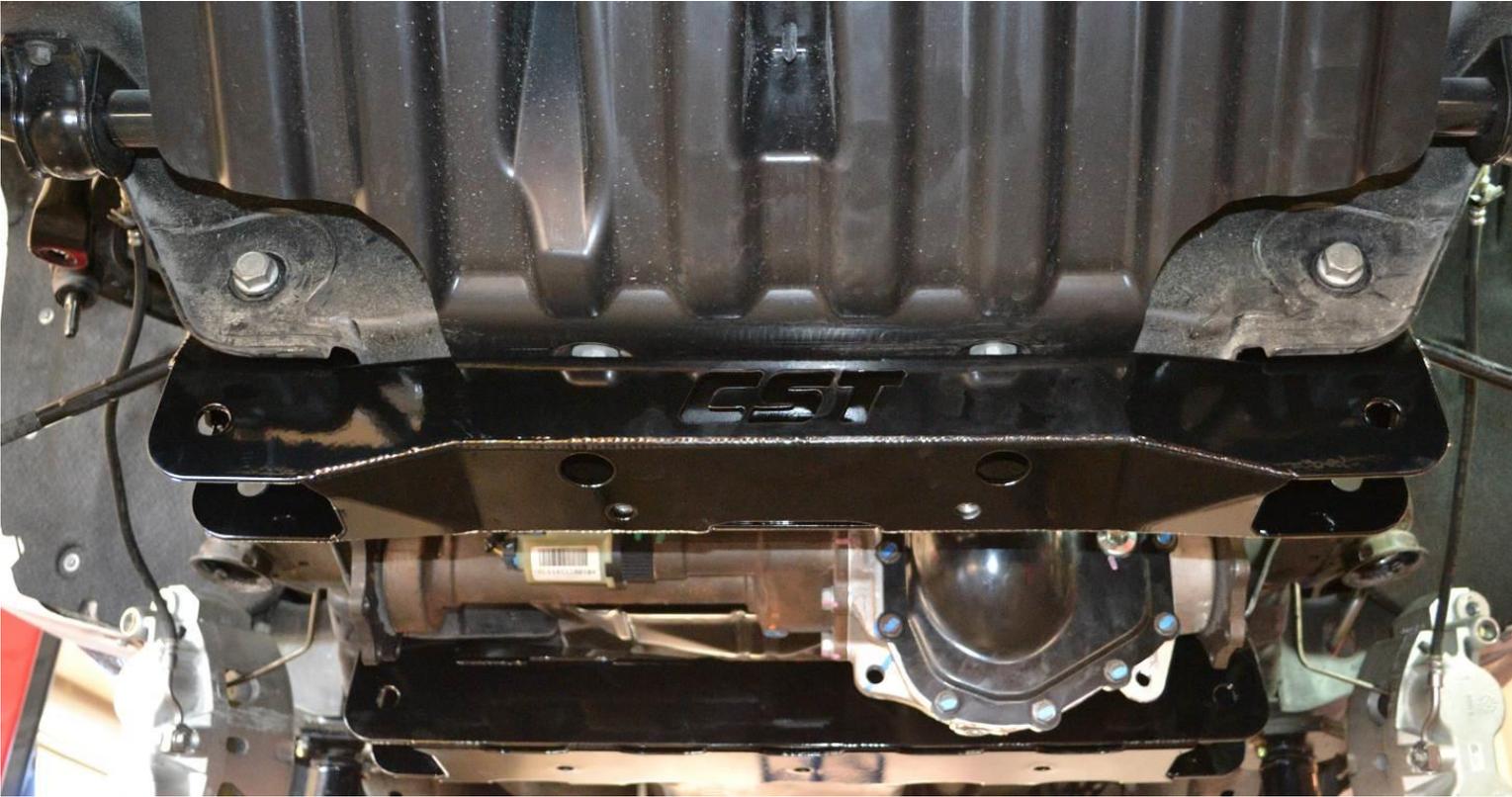
- 32.** Attach the drive shaft to the differential using the stock hardware and Loctite. (🔧 11mm socket)

- 33.** Open parts bag #3

- 34.** Install the rear sub frame cross member using the stock bolts that were holding the lower arms to the frame.  $\frac{1}{4}$ " must be cut off of factory bolt before installing. Bolts should be installed from rear to front. Install the supplied  $\frac{7}{16}$  bolts in the 4 smaller holes on the back side. Tighten all hardware holding the rear subframe at this time.



35. Install the front sub frame using the stock bolts and Loctite. Do not tighten at this time. (🔧 21mm socket, 24mm wrench, 3/4 socket, 3/4 wrench)



36. Open parts bag #4

37. Slide the large steel sleeves into the lower arms where the torsion bar used to be.

38. Slide the torsion brackets over the large steel sleeves and install the supplied 5/8 bolt, you do not need to put the nut on or tighten it at this time.

39. **Make sure the bracket is pushed as far forward as possible.** Mark the arm where the 2 5/16" bolt holes need to be drilled. Remove the bracket.

40. Drill the lower arm with a 5/16" drill bit on your marks from the last step. Secure the bracket to the lower arms using the 5/16" and 5/8" bolts. Use the photo for reference, driver's side shown. Tighten all of the hardware for the torsion brackets. (🔧 3/4 wrench, 3/4 socket, 1/2 wrench, 1/2 socket)



**41.** Reinstall the torsion bars in the truck the way they were removed.

**42.** Open parts bag #5

Slide the lower control arm onto torsion bars, then into cross members. Install the front bolts with the nut side to the rear. And the opposite for the rear bolts. Do not tighten these bolts at this time; you need to do this at ride height to lessen wear on the rubber bushings.



**43.** Tighten all of the bolts that hold the front and rear sub frames to the frame. Use Loctite on the stock bolts. Do not tighten the bolts that hold the lower arms in. (🔧 24mm socket, 21mm wrench, 11/16 socket, 5/8 wrench)

**44.** Set the stock spindles on the table with the hub side down. Remove the hub bolts and remove the stock spindle from the hub. Leave dust shield in place on hub. (🔧 21mm socket)

**45.** Set the new CST spindle on to the hub and dust shield. Bolt the spindle to the hub using the stock bolts and loctite. You must reuse the dust shields. (🔧 21mm socket)

**46.** Install the spindles onto the truck using the stock hardware. Make sure to slide axle through hub as installing front spindle onto lower ball joint. Install upper control arm onto spindle. Tighten upper and lower ball joints nuts to factory torque spec. (🔧 24mm socket, 21mm wrench)

**47.** Do not install tie rods at this time.

**48.** Install the axle nut and washer and tighten the nut with Loctite. Tap the dust cover back on. (🔧 34mm socket, rubber mallet)

**49.** Install the rotors (🔧 t30 torx)

**50.** Install the brake calipers using the stock bolts and red loctite. Make sure the brake line is behind the spindle. (🔧 21mm socket)

**51.** Open parts bag # 6

**52.** Install the brake line bracket using the stock bolt and gently bend the brake line down to match up to the bracket. Bolt the stock bracket to the supplied one using the supplied bolt. Use the picture below for reference. (🔧 13mm socket, 1/2 socket, 1/2 wrench)



**53.** Route the antilock wire up the spindle and attach it to the bracket using the supplied zip ties. Remove the plastic clip that is pushed into the frame. Run the wire through the hole in the front of the shock bucket so the connector is on the inside of the shock bucket. Attach the antilock wire to the frame using the supplied zip ties. Locate it so you gain as much slack as possible for the suspension.



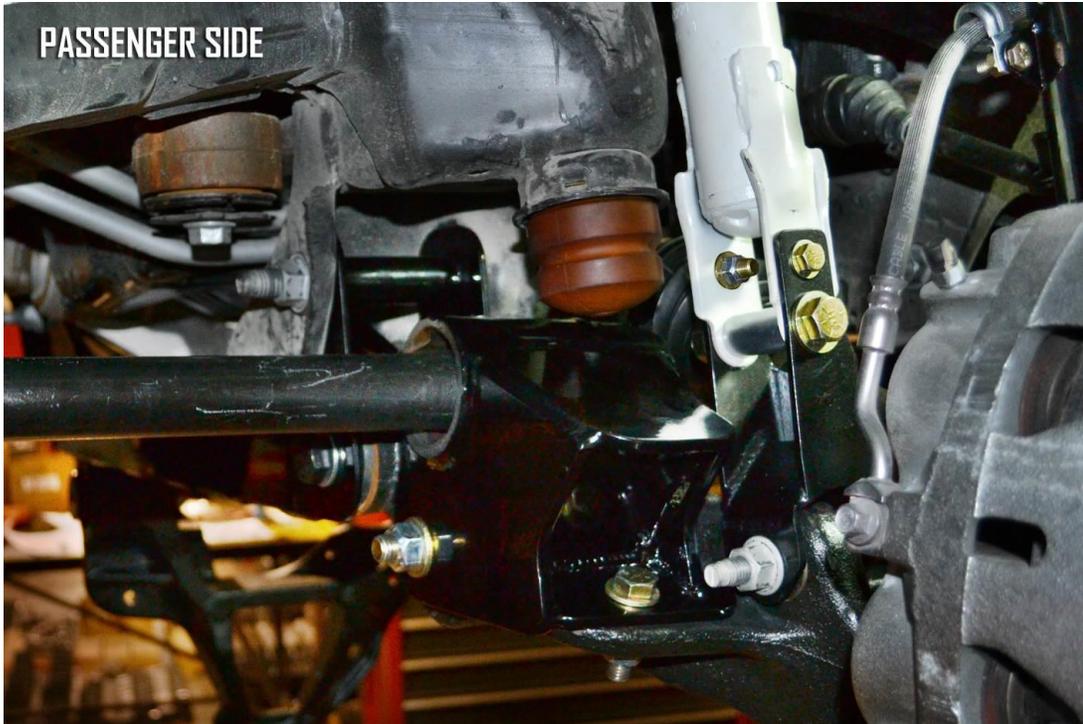
**54.** Open parts bag # 7

**55.** Install the sway bar extensions to the end of the OEM sway bar using supplied hardware. (🔧 3/4 socket, 3/4 wrench) Reinstall factory sway bar links. (18mm wrench)

**56.** Open parts bag # 8

**57.** If you are installing aftermarket shocks do so now, if you are using the stock shocks bolt the shock extensions to the shocks. Use the supplied 9/16 bolt and crush sleeve to attach the bracket to the shock. Then drill the 3/8 holes in the bottom of the shock. Install the 3/8 bolts and tighten. (🔧 13/16 wrench, 7/8 socket, 9/16 socket, 9/16 wrench)

**58.** Install the shock using the stock hardware and locktite. Rotate the bottom of the shock bracket so the open side is toward the rear. (🔧 21mm wrench, 21mm socket)



**59.** Attach the tie rod ends to the spindle using the stock hardware. (🔧 21mm socket)

**60.** Use a large drill bit to put a recess in the torsion key where the adjuster bolt sits against the key. Center it in the key. Use a drill bit between the sizes of 3/4 and 1" and drill it 3/16" deep at the deepest part of the hole. When you are finished it should look like the key in the picture below.



61. Hold the torsion keys in place and slide the torsion bars back into the keys. You may need to use a torsion key tool to hold the keys up and install the adjusters. Adjust the keys  $\frac{1}{4}$ " higher than they were stock. You will finalize the ride height later after the truck is on the ground. (🔧 21mm socket, torsion key tool)
62. Parts bag #9
63. Install the lower skid plate using the supplied  $\frac{1}{2}$ " bolts and washers. (🔧 3/4 socket)
64. Install the front wheels. (🔧 22mm socket)
65. Rear lift:
66. Remove the rear wheels. (🔧 22mm socket)
67. Make sure you do not over stretch any brake lines or antilock wires while installing the rear lift blocks.
68. Support the rear axle with a jack and remove the shocks. (🔧 21mm socket, 21mm wrench)
69. Use caution when installing the lift blocks, it is a good idea to put a couple straps under the rear axle and the pinion for safety. Do the blocks one side at a time. Make sure you do not over stretch any lines during installation. Double check the blocks. Blocks are angled, put small side towards front of truck.
70. With the jack under one side of the rear axle remove the u-bolts on that side. Lower it down and install the lift block. Install the supplied u-bolts and snug them up a little. Then repeat for the other side of the truck. Once both sides are in tighten the u-bolts. (🔧 28mm or 1 1/16 socket)
71. Jack the rear end up a little and install the new rear shocks using the stock hardware and locktite. (🔧 21mm socket, 21mm wrench)
72. Install the rear wheels and set the truck on the ground.
73. Torque the lug nuts to 100 ft. Lbs. (🔧 22mm socket)
74. Torque the u-bolts to 100 ft. Lbs. (🔧 1 1/16 socket)
75. Tighten the bolts for the front lower arms. (🔧 27mm socket, 27mm wrench)
76. Turn the steering all the way from side to side and make sure the brake lines and antilock wires are in a safe location and do not rub the wheels or get pinched between any suspension parts.
77. Visually inspect the suspension and make sure all the bolts are tight, and that everything is finished.
78. Have the truck professionally aligned.
79. Visually inspect the suspension and re-torque the u-bolts after 200 miles.

**Recommended alignment specs:** (In order of importance)

Camber:  $-.3^{\circ}$  to  $.4^{\circ}$  ( $-.1^{\circ}$  is ideal)

Toe:  $-.05^{\circ}$  to  $.15^{\circ}$  ( $.07^{\circ}$  is ideal)

Caster:  $2.5^{\circ}$  to  $4.5^{\circ}$  ( $3.7^{\circ}$  is ideal)

**PARTS BAG # 1**

- 2 1/2" WASHERS
- 2 12mm X 35 mm BOLTS

**PARTS BAG # 2**

- 2 1/2-13 x 1 1/2" BOLTS
- 3 1/2-13 LOCK NUTS
- 6 1/2 WASHERS
- 1 4" VENT LINE EXTENSION W/FITTING
- 1 1/2-13 x 3 1/2" BOLT
- 1 9/16-12 x 3 1/2" BOLT
- 1 9/16-12 LOCK NUT
- 2 9/16 WASHERS
- 3 7.31 ZIP TIES

**PARTS BAG # 3**

- 4 7/16-14 x 1" BOLTS
- 4 7/16-14 LOCK NUTS
- 8 7/16 WASHERS

**PARTS BAG # 4**

- 2 5/8-11 x 6" BOLTS
- 4 5/8 WASHERS
- 2 5/8-11 LOCK NUTS
- 4 5/16-18 x 1 1/2" BOLTS
- 8 5/16 WASHERS
- 4 5/16-18 LOCK NUTS

**PARTS BAG # 5**

- 2 18mm x 120mm BOLTS
- 2 18mm x 140mm BOLTS
- 8 18mm WASHERS
- 4 18mm NY-LOCK NUTS

**PARTS BAG#6**

- 5 1/4-20 x 3/4" BOLTS
- 1 1/4-20 x 1" BOLTS
- 12 1/4 WASHERS
- 12 1/4-20 LOCK NUTS
- 5 3/8 ADEL CLAMPS
- 2 FRONT BRAKE LINE BRACKET

**PARTS BAG #7**

- 2 1/2-13 x 1 1/2" BOLTS
- 2 1/2-13 LOCK NUTS
- 2 1/2 WASHERS

**PARTS BAG #8**

- 2 9/16-12 x 3 1/2" BOLTS
- 4 9/16 WASHERS
- 2 9/16-12 LOCK NUTS
- 4 3/8-16 x 1" BOLTS
- 8 3/8 WASHERS
- 4 3/16-16 LOCK NUTS
- 2 SHOCK EXTENSION CRUSH SLEEVES

**PARTS BAG #9**

- 5 1/2-13 x 1" BOLTS
- 5 1/2 WASHERS

**BOX # 1**

- 1 FRONT SUBFRAME
- 1 REAR SUBFRAME
- 1 PASSENGER SIDE DIFF DROP MOUNT
- 1 DRIVERS SIDE DIFF DROP MOUNT
- 1 2" REAR LIFT BLOCKS

**BOX # 2**

- 1 SPINDLE DRIVER
- 1 SPINDLE PASSENGER

**BOX # 3**

- 4 3/4 x 3 1/4 x 13" SQ. U-BOLTS W/ NUTS AND WASHERS
- 1 LOWER SKIDPLATE
- 1 TORSION BRACKET DRIVERS
- 1 TORSION BRACKET PASSENGER
- 2 LARGE STEEL SLEEVES FOR TORSION MOUNTS
- 2 SHOCK EXTENSIONS
- 1 SWAY BAR EXTENSION DRIVER
- 1 SWAY BAR EXTENSION PASSENGER
- 1 PARTS BAGS 1-9

Center holes with holes on frame



# Frame Cut Pattern

Mark frame to be cut  
make sure frame is cut correctly or diff will not fit

This side comes within 3/4"  
from main frame hole. This cut is  
critical to ensure fitment of the diff.